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CLAIMS

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1. A dragline excavator bucket control system, said system comprising:
- 5 a pair of hoist ropes and a drag rope, said system characterized in that said hoist ropes are supported on said boom adjacent a free end thereof at spaced support positions and said hoist ropes are coupled adjacent opposite ends of a dragline bucket whereby said hoist ropes are substantially parallel and the line connecting said boom support points and the line connecting said bucket attachment
- 10 points are substantially parallel when said bucket is in an optimal transport attitude for said bucket.
2. A control system as claimed in claim 1 including a support system having four spaced support points in side elevation forming a quadrilateral shape.
- 15 3. A control system as claimed in claim 2 wherein in use, said four points of said support system define a substantially parallelogram shape.
4. A control system as claimed in claim 1 wherein said bucket, in use, is urged between a transport position and a dumping position by
- 20 a dumping mechanism said dumping mechanism being operable by lengthening one of said hoist ropes relative to the other hoist rope whereby gravitational forces cause movement of said bucket between a transport position and a dumping position.
5. A control system as claimed in claim 4 wherein lengthening

of one hoist rope relative to the other hoist rope is effected by separately controllable hoist rope drums.

6. A control system as claimed in claim 5 wherein the separately controllable hoist rope drums are operated by a common drive.

7. A control system as claimed in claim 5 wherein the separately controllable hoist rope drums are operated by respective drives.

8. A control system as claimed in claim 5 wherein the separately controllable hoist rope drums are coupled by a selective engagement mechanism to permit, in use, a predetermined degree of differential relative rotation between said separately controllable hoist rope drums.

9. A control system as claimed in claim 8 wherein the selective engagement mechanism comprises a clutch mechanism.

10. A control system as claimed in claim 8 wherein the selective engagement mechanism may comprises a differential gear assembly.

11. A control system as claimed in claim 4 wherein the bucket, in use, is urged between a transport position and a dumping position by relative movement between spaced upper support positions for said hoist ropes.

12. A control system as claimed in claim 4 wherein a self compensating hoist rope take up system restores the bucket to a carry

position under the influence of potential energy stored in said hoist rope take up system.

13. A control system as claimed in claim 12 wherein the self compensating hoist rope take up system may comprise a suspended mass.

14. A control system as claimed in claim 12 wherein the take up system comprises a spring biasing mechanism.

15. A control system as claimed in claim 12 wherein the take up system comprises a hydraulic biasing mechanism.

16. A control system as claimed in claim 12 wherein said hydraulic biasing system includes a pressure accumulating chamber.

17. A control system as claimed in claim 12 wherein the self compensating take up system is selected from any combination of a suspended mass, a spring biasing mechanism and/or a hydraulic biasing mechanism.

18. A control system as claimed in claim 4 wherein the bucket, in use, is urged between a transport position and a dumping position by a powered system effective to cause relative shortening of one hoist rope relative to the other.

19. A control system as claimed in claim 18 wherein one of said hoist ropes is shortened relative to the other by a powered sheave mechanism contactable with said hoist rope.

20. A control system as claimed in claim 18 wherein one of said hoist ropes is shortened relative to the other by selective rotation

of a sheave support arm pivotally mounted adjacent a free end of an excavator boom.

21. A method of operating a dragline excavator wherein a pair of hoist ropes are coupled adjacent opposite ends of a dragline bucket, said hoist ropes being supported at spaced support positions on a boom of said excavator, whereby relative movement of one hoist rope relative to the other hoist rope permits selective optimisation of a transport attitude of said dragline bucket.
22. A method as claimed in claim 21 wherein selective dumping of bucket contents is achieved by selective relative movement of one hoist rope relative to another.
23. A method as claimed in claim 22 wherein said bucket is urged between a transport position and a dumping position by selectively lengthening or shortening of one of said pair of hoist ropes relative to the other hoist rope of said pair.
24. A method as claimed in claim 21 wherein each of said pair of hoist ropes is coupled to a respective separately controllable hoist rope drum.
25. A method as claimed in claim 24 wherein each hoist rope drum is selectively operable from a common drive.
26. A method as claimed in claim 24 wherein each hoist rope drum is selectively operable by a respective drive.